IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	C. David Young
Title:	QUALITY OF SERVICE CONGESTION METRICS PROPAGATED USING ROUTING UPDATES SYSTEM AND METHOD
Appl. No.:	10/666,772
Filing Date:	9/19/2003
Examiner:	Karikari, Kwasi
Art Unit:	2617
Confirmation Number:	9426

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
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Alexandria, VA 22313-1450

Sir:

This Appeal Brief is being filed in response to the Final Office Action dated February 12, 2009 (finally rejecting claims 1-3 and 7-22, hereinafter "the Final Office Action") and in response to the Advisory Action dated April 28, 2009 (hereinafter "the Advisory Action"). The Notice of Appeal was filed on May 12, 2009. Appellants respectfully request reconsideration of the application.

Under the provisions of 37 C.F.R. § 41.37, please charge the fee in the amount of $540.00 covering the 37 C.F.R. 41.20(b)(2) appeal fee to Deposit Account 18-1722. If this fee is

deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned Deposit Account 18-1722.

REAL PARTY IN INTEREST

The real party of interest is Rockwell Collins, Inc. This application is assigned to, and the real party in interest in this application is, Rockwell Collins, Inc. having a place of business at 400 Collins Road, NE, Cedar Rapids, Iowa 52498.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to Appellants, the Appellants' legal representative, or assignee which may be related to, directly affect, or be directly affected by or having a bearing on the Board's decision in this pending appeal.

STATUS OF CLAIMS

This is an appeal from the Final Office Action mailed February 12, 2009, and the Advisory Action mailed April 28, 2009, finally rejecting Claims 1-3 and 7-22 under 35 U.S.C. § 103 being unpatentable over U.S. Patent Application No. 2003/0198206 to Cain et. al. (hereinafter "Cain") in view of U.S. Patent Application No. 2002/0085503 to Hulyalkar et al. (hereinafter "Hulyalkar") and/or U.S. Patent Application No. 2004/0203820 to Billhartz (hereinafter "Billhartz"). Claims 4-6 were cancelled without prejudice in the application. Claims 1-3 and 7-22 are pending and have been finally rejected. Claims 1-3 and 7-22 are the subject of the present appeal.

STATUS OF AMENDMENTS

No amendments to the claims have been requested to be entered since either the Final Office Action dated February 12, 2009 or Advisory Action dated April 28, 2009.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a wireless ad-hoc radio node network system which utilizes a retransmission system. See Specification, Page 2, lines 18-19.

Independent Claim 1 is directed to a communication system. See Specification, Page 3, line 2 and Figure 3. The communication system including a plurality of transceiver nodes configured to utilize a time division multiple access structure to communicate between the plurality of transceiver nodes. See Specification, Page 3, lines 3-5, Page 7, lines 22-24, Figure 4 and Figure 5. Each transceiver node generating congestion metric information based on the utilization of a link to each of its neighbors. See Specification, Page 3, lines 5-6, Page 9, lines 7-24, Figure 4 and Figure 5. The communication system includes a route management module 380 configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report. See Specification, Page 3, lines 6-10, Page 9, lines 7-24, and Figures 3-5. The route management module 380 being configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports. See Specification, Page 3, lines 24-27, Page 8, lines 5-10, Page 9, lines 7-24, and Figures 3-5. The route management module 380 is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information. See Specification, Page 3, lines 24-27, Page 8, lines 5-10, Page 9, lines 7-24, and Figures 3-5. The time division multiple access structure 360 includes a plurality of time slots during which the plurality of transceiver nodes are configured to communicate data cells. See Specification, Page 3, lines 5-6 and Figures 3-5. The data cells being transmitted from a transmission queue and the data cells including routing information and the congestion metric information. See Specification, Page 3, lines 6-10, Page 9, lines 7-24, and Figures 3-5. The congestion metric information is based on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity. See Specification, Page 7, line 25 to Page 8, line 10.

Independent Claim 8 is directed to a method of propagating congestion information in a transmission system. See Specification, Page 3, lines 11-12 and Figure 3. The transmission system comprising transceiver nodes. See Specification, Page 3, lines 12-13 and Figures 4-5. The method includes measuring by the transceiver node, the utilization of each of the links to each of its neighbors. See Specification, Page 3, lines 12-13, Page 9, lines 7-24, and Figures 4-5. The method includes generating congestion metric information based on the link utilization. See Specification, Page 3, lines 14-16, Page 9, lines 7-24, and Figures 4-5. The method includes combining the congestion metric information with routing information. See Specification, Page 3, lines 16-17, Page 8, lines 5-10, Page 9, lines 7-24, and Figures 3-5 The method includes transmitting the congestion metric information and routing information. See Specification, Page 3, lines 17-18, Page 9, lines 7-24, and Figures 3-5. The congestion metric information is based on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity. See Specification, Page 7, line 25 to Page 8, line 10.

Independent Claim 16 is directed to radio transceiver propagating congestion information in a radio network system. See Specification, Page 3, lines 19-20 and Figure 3. The radio network system comprising radio transceiver nodes. See Specification, Page 3, lines 20-21 and Figures 4-5. The radio network system including a means for measuring by the transceiver node, the utilization of each of the links to each of its neighbors. See Specification, Page 3, lines 21-23, Page 9, lines 7-24, and Figures 4-5. The radio network system including a means for generating congestion metric information based on the link utilization. See Specification, Page 3, lines 23-24, Page 9, lines 7-24, and Figures 4-5. The radio network system including a means for combining the congestion metric information with routing information. See Specification, Page 3, lines 24-27, Page 8, lines 5-10, Page 9, lines 7-24, and Figures 3-5. The radio network system including a means for transmitting the congestion metric information and routing information. See Specification, Page 3, lines 24-27, Page 9, lines 7-24, and Figures 3-5. The congestion metric information is based on comparing cell counts against a total capacity of each

link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity. See Specification, Page 7, line 25 to Page 8, line 10.

Dependent Claim 2 depends from independent Claim 1 and includes the limitations of the congestion metric information is generated by a channel access subsystem 370. See Specification, Page 7, lines 26-29 and Figure 3.

Dependent Claim 12 depends from independent Claim 8 and includes the limitations of wherein a flow control subsystem of a second transceiver node may utilize the congestion metric information when received by the second transceiver node. See Specification, Original Claim 12 and Figures 4-5.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Claims 1, 3, and 7 are unpatentable under 35 U.S.C. § 103 over U.S. Patent Application No. 2003/0198206 to Cain et. al. (hereinafter "Cain") in view of U.S. Patent Application No. 2002/0085503 to Hulyalkar et al. (hereinafter "Hulyalkar") and/or U.S. Patent Application No. 2004/0203820 to Billhartz (hereinafter "Billhartz").

2. Whether Claims 8-11, 13-19, and 22 are unpatentable under 35 U.S.C. § 103 over Cain in view of Hulyalkar and/or Billhartz.

3. Whether Claims 2 and 21 are unpatentable under 35 U.S.C. § 103 over Cain in view of Hulyalkar and/or Billhartz.

4. Whether Claims 12 and 20 are unpatentable under 35 U.S.C. § 103 over Cain in view of Hulyalkar and/or Billhartz.

ARGUMENT

I. References Relied Upon

The following references were relied upon by the Examiner: U.S. Patent Publication No. 2003/0198206 to Cain et al., U.S. Patent Publication No. 2002/0085503 to Hulyalkar, and U.S. Patent Publication No. 2004/0203820 to Billhartz.

II. Legal Standard – 35 U.S.C. § 103

Claims 1-3 and 7-22 were rejected under 35 U.S.C. § 103(a). 35 U.S.C. § 103(a) states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was

> made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Obviousness under 35 U.S.C. § 103(a) is a legal conclusion involving four factual inquiries:

(1) the scope and content of the prior art;

(2) the differences between the claims and the prior art;

(3) the level of ordinary skill in the pertinent art; and

(4) secondary considerations, if any, of nonobviousness.

See Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966). See also KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007) ("While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.").

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955,1956 (Fed. Cir. 1993). A *prima facie* case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Further, the Examiner must provide references that comply with the all claim limitations standard. A broad conclusory statement regarding the obviousness of modifying a reference, standing alone, is not "evidence." Thus, when an Examiner relies on general knowledge to negate patentability, that knowledge must be articulated and placed on the record. See In re Lee, 277 F.3d 1338, 1342-45, 61 USPQ2d 1430, 1433-35 (Fed. Cir. 2002). See also In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

Recently, in KSR Int'l v. Teleflex, the Supreme Court rejected a rigid approach to the question of obviousness. 550 U.S. 398, 127 S.Ct. 1727, 1738 (2007). At the same time, however, the Supreme Court recognized that, "inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." Id. at 1741. Thus, a patent composed of several elements "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." Id. Therefore, there must be an articulated reasoning with a rational underpinning to support a legal conclusion of obviousness. Id. ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.") (quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)).

III. Rejections

A. Arguments of the Claims

For the purposes of this appeal only, Claims 1, 3, and 7 are grouped together into Group 1 and essentially stand together or fall together and are, therefore, grouped together. Independent Claim 1 is the representative claim for Group 1 because it is the broadest claim in Group 1.

For the purposes of this appeal only, Claims 8-11, 13-19, and 22 are grouped together into Group 2 and essentially stand together or fall together and are, therefore, grouped together. Independent Claim 8 is the representative claim for Group 2 because it is the broadest claim in Group 2.

For the purposes of this appeal only, Claims 2 and 21 are grouped together into Group 3 and essentially stand together or fall together and are, therefore, grouped together. Claim 2 is the representative claim for Group 3 because it is the broadest claim in Group 3.

For the purposes of this appeal only, Claims 12 and 20 are grouped together into Group 4 and essentially stand together or fall together and are, therefore, grouped together. Claim 12 is the representative claim for Group 4 because it is the broadest claim in Group 4.

B. Claims 1, 3, and 7 are patentable over Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103.

Claims 1, 3, and 7 of Group 1 are patentable over the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 because the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest the claimed subject matter of Claim 1. Independent Claim 1 includes the limitations of "combin[ing] the congestion metric information generated by the plurality of transceiver nodes into a congestion report," "combin[ing] routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, [and] transmit[ting] one of the plurality of node routing and congestion reports to each transceiver node based on the routing information."

With regard to the combined node routing and congestion reports limitations of independent Claim 1 listed above, the Examiner admits that Cain fails to disclose these limitations and relies upon Hulyalkar citing various sections (e.g., paras. [0009], [0010], [0026-0030], and [0033-0038]) of Hulyalkar in support of this reliance. Applicants respectfully disagree with the Examiner's position with respect to Hulyalkar.

Independent Claim 1 is materially different than the Hulyalkar reference. As an example, the Examiner cites paragraph [0028] of Hulyalkar for the position that Hulyalkar discloses the combined node routing and congestion reports limitations of Claim 1. The Examiner stated:

> Cain fails to mention 'a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and

> congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information'; the data cell includes 'routing information' and wherein the congestion metric information is base on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity'.
>
> However, Hulyalkar, which is an analogous art teaches, a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information'; the data cell includes 'routing information' (= each station maintains local database of results of quality assessment for each path to each other station; the organization of network quality assessment measurement as a matrix; and the matrix includes transmitting stations and receiving stations identifiers and reported quality assessment, see Pars. [0009-0010, 0026-30 and 00337-38]. (Office Action dated February 12, 2009, pages 5-6).
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> In the Advisory Action, the Examiner stated:
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> In contrast to Applicant's assertion, Hulyalkar is understood to teach mobile wireless terminal/station and **each station maintains local database of results of quality assessment for each path to each other station**; the organization of network quality assessment measurement as a matrix; the matrix including transmitting stations and receiving stations identifiers and reported quality assessment (see Pars. [0009-10, 0026-30 and 00337-38]). (Advisory Action dated April 28, 2009, page 2). *Emphasis added.*

However, these sections of Hulyalkar (and Hulyalkar in general) do not disclose, teach, or suggest "combin[ing] routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, [and] transmit[ting] one of the plurality of node routing and congestion reports to each transceiver node based on the routing information." Applicants respectfully submit that the Specification discloses that "the route management 380

disseminates congestion information about all routes in the subnet." (See Specification, Page 9, lines 7-8). The Specification further discloses that "[r]oute management 380 is responsible for disseminating the congestion information about routes to destination nodes. Because it is already propagating routing information, it is advantageous to piggyback the congestion reports onto this mechanism." (See Specification, Page 8, lines 5-8). In other words, the plurality of node routing and congestion reports include quality assessments for all of the paths.

As stated in paragraph [0028] of Hulyalkar cited by the Examiner, the Hulyalkar reference discloses "[e]ach station will maintain in its local data base 360, a quality assessment for each path to each other station. For example, station 1 will maintain the quality assessments for paths 2-1, 3-1, 4-1, etc." In other words, station 1 maintains a quality assessment for any direct inbound link from another station but does not have any data regarding the quality assessment for paths 1-2, 1-3, 1-4, 2-3, 2-4, 2-5, 3-4, etc. **The Applicants respectfully submit that an examination of Figure 5 of Hulyalkar shows that each station only has quality assessment data for the inbound links.** This position is supported by "[t]he results of the assessment, and the corresponding transmitting station identifier, are stored in a local data base 360 within each receiving station." (Hulyalkar, para. [0027]).

Claim 1 recites "combin[ing] routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, [and] transmit[ting] one of the plurality of node routing and congestion reports to each transceiver node based on the routing information." **Therefore, the congestion report includes quality assessments for all of the paths (e.g., 2-1, 3-1, 4-1, 2-3, 2-4, 2-5, 3-4, 3-5 etc.).** Hulyalkar does not disclose, teach, or suggest the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information.

In addition, Claim 1 transmits the node routing and congestion reports to each transceiver node based on the routing information. Hulyalkar does not disclose, teach, or suggest transmitting node routing and congestion reports based on routing information. Further,

Hulyalkar does not disclose, teach, or suggest the congestion metric information is based on a monitoring signal of a processor buffer availability.

As stated above by the Examiner, Cain does not cure the deficiencies of Hulyalkar with respect to the above-referenced limitations of Claim 1 because Cain fails to mention:

> 'a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information' (Office Action dated February 12, 2009, pages 5-6).

In addition, Billhartz does not cure the deficiencies of Hulyalkar noted above with respect to independent Claim 1. As stated in paragraphs [0073] and [0074] of Billhartz previously cited by the Examiner, the Billhartz reference includes a traffic information generator 76, a traffic monitoring unit 70, and a route selection unit 58. The traffic monitoring unit 70 monitors traffic communicated between nodes 30. The traffic information generator 76 generates traffic information based upon how much traffic is being communicated. The route selection unit 58 selects traffic routes to the destination node based upon the stored traffic information. However, the route selection unit 58 does not combine the traffic information and the routing information to transmit a combined traffic information and routing information signal. Therefore, Billhartz does not disclose, teach, or suggest "combin[ing] the congestion metric information generated by the plurality of transceiver nodes into a congestion report," "combin[ing] routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, [and] transmit[ting] one of the plurality of node routing and congestion reports to each transceiver node based on the routing information," as recited in independent Claim 1.

Since the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest "combin[ing] the congestion metric information generated by the plurality of transceiver nodes into a congestion report," "combin[ing] routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, [and] transmit[ting] one of the plurality of node routing and congestion reports to each transceiver node based on the routing information," as recited in independent Claim 1, the subject matter of Claim 1 is patentable over the combination of Cain, Hulyalkar, and Billhartz.

Therefore, Claim 1 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103. Since Claim 1 is the representative claim of Group 1 and is allowable, Claims 3 and 7 of Group 1 are allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as independent Claim 1. Accordingly, the rejection of Claims 1, 3, and 7 should be reversed by the Board.

C. Claims 8-11, 13-19, and 22 are patentable over Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103.

Claims 8-11, 14-19, and 22 of Group 2 are patentable over the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 because the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest the claimed subject matter of Claim 8. Independent Claim 8 includes the limitations of "generating congestion metric information based on the link utilization," "combining the congestion metric information with routing information" and "transmitting the congestion metric information and routing information." In Claim 8, the data cells transmit routing information and the congestion metric information at the same time, which is apparent by the language "combining the congestion metric information with routing information." The congestion metric information can advantageously use the resources dedicated to the routing updates to deliver the congestion metric information.

With regard to the generating congestion metric information based on the link utilization and combining routing information and congestion information limitations of independent Claim 8 listed above, the Examiner admits that Cain fails to disclose these limitations and relies upon Hulyalkar citing various sections (e.g., paras. [0009], [0010], [0026-0030], and [0033-0038]) of Hulyalkar in support of this reliance. Applicants respectfully disagree with the Examiner's position with respect to Hulyalkar.

Independent Claim 8 is materially different than the Hulyalkar reference. As an example, the Examiner cites paragraph [0028] of Hulyalkar for the position that Hulyalkar discloses generating congestion metric information based on the link utilization and the combining routing information and congestion information limitations of Claim 8. The Examiner stated:

> Cain fails to mention 'a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver

> node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information'; the data cell includes 'routing information' and wherein the congestion metric information is base on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity'.
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> However, Hulyalkar, which is an analogous art teaches, a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information'; the data cell includes 'routing information' (= each station maintains local database of results of quality assessment for each path to each other station; the organization of network quality assessment measurement as a matrix; and the matrix includes transmitting stations and receiving stations identifiers and reported quality assessment, see Pars. [0009-0010, 0026-30 and 00337-38]. (Office Action dated February 12, 2009, pages 5-6).
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> In the Advisory Action, the Examiner stated:
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> In contrast to Applicant's assertion, Hulyalkar is understood to teach mobile wireless terminal/station and **each station maintains local database of results of quality assessment for each path to each other station**; the organization of network quality assessment measurement as a matrix; the matrix including transmitting stations and receiving stations identifiers and reported quality assessment (see Pars. [0009-10, 0026-30 and 00337-38]). (Advisory Action dated April 28, 2009, page 2). *Emphasis added.*

However, these sections of Hulyalkar (and Hulyalkar in general) do not disclose, teach, or suggest "generating congestion metric information based on the link utilization," "combining the congestion metric information with routing information" and "transmitting the congestion metric information and routing information." Applicants respectfully submit that the Specification

discloses that "the route management 380 disseminates congestion information about all routes in the subnet." (See Specification, Page 9, lines 7-8). The Specification further discloses that "[r]oute management 380 is responsible for disseminating the congestion information about routes to destination nodes. Because it is already propagating routing information, it is advantageous to piggyback the congestion reports onto this mechanism." (See Specification, Page 8, lines 5-8). In other words, the plurality of node routing and congestion reports include quality assessments for all of the paths.

As stated in paragraph [0028] of Hulyalkar cited by the Examiner, the Hulyalkar reference discloses "[e]ach station will maintain in its local data base 360, a quality assessment for each path to each other station. For example, station 1 will maintain the quality assessments for paths 2-1, 3-1, 4-1, etc." In other words, station 1 maintains a quality assessment for any direct inbound link from another station but does not have any data regarding the quality assessment for paths 1-2, 1-3, 1-4, 2-3, 2-4, 2-5, 3-4, etc. **The Applicants respectfully submit that an examination of Figure 5 of Hulyalkar shows that each station only has quality assessment data for the inbound links.** This position is supported by "[t]he results of the assessment, and the corresponding transmitting station identifier, are stored in a local data base 360 within each receiving station." (Hulyalkar, para. [0027]).

Claim 8 recites "generating congestion metric information based on the link utilization," "combining the congestion metric information with routing information" and "transmitting the congestion metric information and routing information." **Therefore, the congestion report includes quality assessments for all of the paths (e.g., 2-1, 3-1, 4-1, 2-3, 2-4, 2-5, 3-4, 3-5 etc.).** Since Hulyalkar only discloses quality assessment data from the inbound links and does not combine quality assessment data with routing information, Hulyalkar does not disclose, teach, or suggest the above-referenced limitations of independent Claim 8.

As stated above by the Examiner, Cain does not cure the deficiencies of Hulyalkar with respect to the above-referenced limitations of Claim 8 because Cain fails to mention:

> 'a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report; the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information' (Office Action dated February 12, 2009, pages 5-6).

In addition, Billhartz does not cure the deficiencies of Hulyalkar noted above with respect to independent Claim 8. As stated in paragraphs [0073] and [0074] of Billhartz previously cited by the Examiner, the Billhartz reference includes a traffic information generator 76, a traffic monitoring unit 70, and a route selection unit 58. The traffic monitoring unit 70 monitors traffic communicated between nodes 30. The traffic information generator 76 generates traffic information based upon how much traffic is being communicated. The route selection unit 58 selects traffic routes to the destination node based upon the stored traffic information. However, the route selection unit 58 does not combine the traffic information and the routing information to transmit a combined traffic information and routing information signal. Therefore, Billhartz does not disclose, teach, or suggest "generating congestion metric information based on the link utilization," "combining the congestion metric information with routing information" and "transmitting the congestion metric information and routing information," as recited in independent Claim 8.

Since the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest "generating congestion metric information based on the link utilization," "combining the congestion metric information with routing information" and "transmitting the congestion metric information and routing information," as recited in independent Claim 8, the subject matter of Claim 8 is patentable over the combination of Cain, Hulyalkar, and Billhartz.

Therefore, Claim 8 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103. Since Claim 8 is the representative claim of Group 2 and is allowable, Claims 9-11, 13-19, and 22 of Group 2 are allowable with respect to the combination

of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as independent Claim 8. Accordingly, the rejection of Claims 8-11, 13-19, and 22 should be reversed by the Board.

D. Claims 2 and 21 are patentable over Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103.

Claims 2 and 21 of Group 3 are patentable over the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 because the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest the claimed subject matter of Claim 2. Claim 2 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as independent Claim 1. Further, Claim 2 includes the limitations of "the congestion metric information is generated by a channel access subsystem." The combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest combining the limitations of Claim 1 with the limitations of "the congestion metric information is generated by a channel access subsystem."

Therefore, Claim 2 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103. Since Claim 2 is the representative claim of Group 3 and is allowable, Claim 21 of Group 3 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as Claim 2. Accordingly, the rejection of Claims 2 and 21 should be reversed by the Board.

E. Claims 12 and 20 are patentable over Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103.

Claims 12 and 20 of Group 4 are patentable over the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 because the combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest the claimed subject matter of Claim 12. Claim 12 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as independent Claim 8. Further, Claim 12 includes the limitations of "wherein a flow control subsystem of a second transceiver node may utilize the congestion metric information when received by the second transceiver node." The combination of Cain, Hulyalkar, and Billhartz does not disclose, teach, or suggest combining the limitations of Claim 8 with the limitations of "wherein a flow control subsystem of a second transceiver node may utilize the congestion metric information when received by the second transceiver node."

Therefore, Claim 12 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103. Since Claim 12 is the representative claim of Group 4 and is allowable, Claim 20 of Group 4 is allowable with respect to the combination of Cain, Hulyalkar, and Billhartz under 35 U.S.C. § 103 for at least the same reasons as Claim 12. Accordingly, the rejection of Claims 12 and 20 should be reversed by the Board.

CONCLUSION

In view of the foregoing, Appellants submit that Claims 1-3 and 7-22 are not properly rejected as being obvious under 35 U.S.C. § 103 over a combination of Cain, Hulyalkar, and Billhartz. Accordingly, it is respectfully requested that the Board reverse the claim rejections and indicate that a Notice of Allowance respecting all pending claims be issued.

Dated this 13 day of July, 2009.

Respectfully submitted,

Date July 13, 2009

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CLAIMS APPENDIX

1. (Previously Presented) A communications system, comprising:

a plurality of transceiver nodes configured to utilize a time division multiple access structure to communicate between the plurality of transceiver nodes, each transceiver node generating congestion metric information based on the utilization of a link to each of its neighbors;

a route management module configured to combine the congestion metric information generated by the plurality of transceiver nodes into a congestion report;

the route management module configured to combine routing information for each transceiver node and the congestion report into a plurality of node routing and congestion reports, the route management module is configured to transmit one of the plurality of node routing and congestion reports to each transceiver node based on the routing information;

the time division multiple access structure including a plurality of time slots during which the plurality of transceiver nodes are configured to communicate data cells, the data cells being transmitted from a transmission queue, the data cells including routing information and the congestion metric information; and

wherein the congestion metric information is based on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity.

2. (Original) The communication system of claim 1, wherein the congestion metric information is generated by a channel access subsystem.

3. (Previously Presented) The communication system of claim 1, wherein the cell counts are transmitted in unicast and broadcast allocated slots.

4-6. (Cancelled)

7. (Previously Presented) The communication system of claim 1, wherein the congestion metric information is further based on the availability of unallocated slots.

8. (Previously Presented) A method of propagating congestion information in a transmission system, the transmission system comprising transceiver nodes, comprising:

measuring by the transceiver node, the utilization of each of the links to each of its neighbors;

generating congestion metric information based on the link utilization;

combining the congestion metric information with routing information;

transmitting the congestion metric information and routing information; and

wherein the congestion metric information is based on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity.

9. (Original) The method of claim 8, wherein the congestion metric information is provided as one of a predetermined number of states.

10. (Previously Presented) The method of claim 9, wherein the predetermined number of states is four.

11. (Previously Presented) The method of claim 8, wherein a route management subsystem disseminates the congestion metric information.

12. (Previously Presented) The method of claim 8, wherein a flow control subsystem of a second transceiver node may utilize the congestion metric information when received by the second transceiver node.

13. (Previously Presented) The method of claim 8, wherein the congestion metric information and routing information is transmitted by a route management subsystem.

14. (Previously Presented) The method of claim 8, wherein the congestion metric information is generated by a channel access subsystem.

15. (Previously Presented) The method of claim 8, wherein the transmission system is a time division multiple access system.

16. (Previously Presented) A radio transceiver propagating congestion information in a radio network system, the radio network system comprising radio transceiver nodes, comprising:

a means for measuring by the transceiver node, the utilization of each of the links to each of its neighbors;

a means for generating congestion metric information based on the link utilization;

a means for combining the congestion metric information with routing information;

a means for transmitting the congestion metric information and routing information; and

wherein the congestion metric information is based on comparing cell counts against a total capacity of each link, a monitoring signal of a processor buffer availability, and a monitoring signal of priority queues capacity.

17. (Original) The radio transceiver of claim 16, wherein the congestion metric information is provided as one of a predetermined number of states.

18. (Previously Presented) The radio transceiver of claim 17, wherein the predetermined number of states is four.

19. (Previously Presented) The radio transceiver of claim 16, wherein a route management subsystem disseminates the congestion metric information.

20. (Previously Presented) The radio transceiver of claim 16, wherein a flow control subsystem of a second transceiver node may utilize the congestion metric information when received by the second transceiver node.

21. (Previously Presented) The radio transceiver of claim 16, wherein the congestion metric information is generated by a channel access subsystem.

22. (Previously Presented) The radio transceiver of claim 16, wherein the radio network system is a time division multiple access system.

EVIDENCE APPENDIX

Appellants are submitting no additional evidence at this time.

RELATED PROCEEDINGS APPENDIX

There are no related appeals or interferences.